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## HOUSES AND GARDENS OF THE NEW ENGLAND INDIANS

By CHARLES C. WILLOUGHBY

The habitations of the New England Indians were of three general types—the round house, the long house, and the conical house. The first two forms occurred throughout this area. The conical house seems to have been more common in Maine than in other sections of New England, where if used at all it was probably employed as a temporary shelter only.

### THE ROUND HOUSE

The outline of the round house (fig. 10, *c, d'*) closely approached that of a hemisphere. The ground-plan was circular,<sup>1</sup> with an approximate diameter of from ten to sixteen feet.<sup>2</sup> The probable height of these lodges over the central fireplace was from six to eight feet. They were occupied by one or two families. According to Williams "two families will live comfortably and lovingly in a little round house of some fourteen or sixteen foot over."

The framework consisted of small poles set in the ground two or three feet apart, enclosing the circular floor space. Several arches were made of "halfe circles of timber,"<sup>3</sup> each formed by bending and lashing two opposite poles together. The remaining poles were bent over and joined to these arches, and horizontal poles were added, the whole being firmly bound together. Morton's description is as follows :

"They gather Poles in the woodes and put the great end of them in the ground, placing them in forme of a circle or circumference and, bendinge the topps of them in form of an Arch they bind them together

<sup>1</sup> Verrazano in Hakluyt, *Divers Voyages*, Hakluyt Society's repr., p. 68. Champlain, *Voyages* (Prince Society), vol. II, pp. 83, 124.

<sup>2</sup> Verrazano, *ibid.* Roger Williams, *Key into the Language of America*, Rhode Island Hist. Soc. Coll., vol. I, p. 48.

<sup>3</sup> Verrazano, *ibid.*

with the Barke of Walnut trees which is wondrous tuffe so that they make the same round on the Topp."<sup>1</sup>

The men usually prepared the poles and made the framework, over which the women fastened the mats and other coverings.

There were usually two entrances to wigwams of this type, one at the north, the other at the south. These were about three feet in height, "and according as the wind sets, they close up one door with bark and hang a deer's skin or the like before the other."<sup>2</sup>

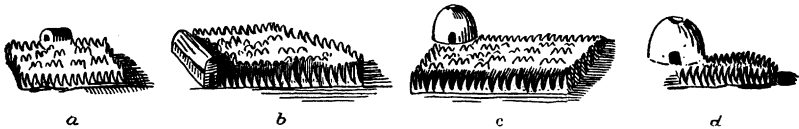


FIG. 10. — Habitations and gardens, coast of Massachusetts. *a*, House and garden at Chatham. *b*, *c*, At Nauset Harbor. *d*, At Gloucester. (After Champlain, 1605-06.)

An opening in the roof about eighteen inches square allowed the smoke to escape. In windy weather, if the smoke became troublesome, this aperture was screened with a small mat placed upon the top of the lodge and arranged with a cord so as to be turned to the windward side.<sup>3</sup> That houses of this type were also common in central and eastern Maine seems evident from the remark of John Gyles, who was captured at Pemaquid in 1689, and lived with the Indians for seven or eight years in the region of the Penobscot and St John rivers. Describing the houses of the beaver, he says "they are round in the figure of an Indian wigwam."<sup>4</sup>

#### THE LONG HOUSE

In the second group are included those lodges having an oblong, rectangular ground-plan (fig. 11, *a*, *b*) and an outline resembling that of a semi-cylinder. The medium and smaller sizes were generally used as communal dwellings. The larger ones, called *gunnekamuck*, seem to have been built principally for ceremonial purposes and were "sometimes a hundred, sometimes two

<sup>1</sup> Morton, *New English Canaan* (Prince Society), p. 134.

<sup>2</sup> John Josselyn, *Two Voyages to New England*, Veazie repr., p. 99.

<sup>3</sup> Gookin, *Historical Collections*, Mass. Hist. Coll., 1st s., repr. 1859, vol. 1, p. 150.

<sup>4</sup> John Gyles' Captivity, in S. G. Drake's *Tragedies of the Wilderness*, p. 94.

hundred feet long,"<sup>1</sup> and thirty feet broad.<sup>2</sup> Usually, however, the council or ceremonial house was much smaller.

The framework was made by setting poles in two parallel rows enclosing the floor space. Opposite poles were bent over and joined to each other in pairs, forming a series of arches of equal height, which were joined together by horizontal poles placed at



FIG. 11. — Habitations, gardens, and fort at Saco river, Maine. *a, c*, "Cabins in the open fields near which they cultivate the land and plant Indian corn." *b*, "Another place where they have their dwellings all together after they have planted their corn." *d*, "Place where they have their fortress." (After Champlain, 1605.)

intervals, forming an arbor-like framework. The poles for the ends of the framework were set either in a straight line and joined to the end arches in a perpendicular position, giving the form to the finished hut shown in figures 10, *a, b*, and 11, *a, b*, or were arranged in a segment of a circle bent over and joined to the main framework, thereby giving a more rounded appearance to the ends of the huts. The dwelling houses of this type had usually "two, three or four fires, at a distance one from another for the better accommodation of the people belonging to it."<sup>3</sup> Houses with two fires were called *ne's quttow*,<sup>4</sup> those with three fires *shwishcuttow*. These wigwams had, according to their size, two or more entrances, which were covered with a deer-skin or with a mat which could be rolled up. According to Wood:<sup>5</sup> "Their houses are smaller in the Summer when their families are dispersed, by reason of heate and occasions. In Winter they make some fiftie or three score foote long, fortie or fiftie men being inmates under one roof." There is evidence, however, that long houses were sometimes occupied as summer dwellings, and while the winter wigwams were more commonly of the

<sup>1</sup> Williams, *op. cit.*, p. 146.

<sup>2</sup> Gookin, *op. cit.*

<sup>3</sup> *Ibid.*

<sup>4</sup> Williams, *op. cit.*, p. 47.

<sup>5</sup> Wood, *New England's Prospect*, Boynton repr., p. 99.

long type, especially in the southern half of New England, smaller cabins were also used for winter habitations.

Verrazano, describing the New England habitations in 1524, writes :

“ We sawe their houses made in circular or rounde fourm 10 or 12 foote in compasse. . . . They moove the foresaide houses from one place to another according to the commoditie of the place and season, wherein they will make their aboade and only taking of the cover, they have other houses builded incontinent. The father and whole familie dwell together in one house in great number : in some of them we saw 25 or 30 persons.”<sup>1</sup>

The long house was used as a dwelling or for council or ceremonial purposes throughout New England. It seems to have been used for the former purpose as far east as the Saco river, Maine, and probably in other sections of the state. The great wigwam was employed for council purposes on the Kennebec river. The one on the Penobscot was twenty feet wide by forty feet long,<sup>2</sup> and Gyles saw one thirty or forty feet in length on the St John river in New Brunswick.

#### THE CONICAL HOUSE

The conical wigwam (fig. 11, *b*, *c*) seems not to have been in very general use ; it is the traditional lodge of the modern Penobscot Indians, who have no knowledge of other aboriginal forms. The framework was made of straight poles with their lower ends set into the ground enclosing the circular floor space, their upper ends being brought together and fastened. This frame resembled that of the skin tipi of the Plains tribes, and was covered with bark mats or pieces of bark which were sometimes held in place by a second series of poles placed over them. Father Rasles, in a letter written at the Indian village of Nanrantsouak (Norridgewock) on the Kennebec in 1723, describes the type as follows :

“ Their cabins are easily built. They plant poles in the earth, which they join at the top, and then cover them with large pieces of bark. The fire they make in the middle of the cabin and all around it . . . they sit during the day and sleep at night.”<sup>3</sup>

<sup>1</sup> Verrazano, *op. cit.*, p. 68

<sup>2</sup> Maine Hist. Soc. Coll., 1876, vol. VII, p. 14

<sup>3</sup> Kip, *Early Jesuit Missions in North America*, p. 24.

The cabins thus described were not temporary shelters, but formed a permanent village which was surrounded by palisades.

Both the round and the conical wigwams stand side by side in the modern camps of the Cree and Ojibwa, and it is not improbable that they were thus used over a considerable portion of Maine.

#### OTHER HOUSES

Mourt in his *Relation*<sup>1</sup> thus describes the cabin of a chief in eastern Massachusetts :

“A mile from hence, Nanepashemet their King in his lifetime had lived, His house was not like others, but a scaffold was largely built, with pools and plancks, some six foote from the ground, and the house upon that, being situated on the top of a hill.”

Dwellings upon raised platforms were unusual. According to Williams it was the custom to erect “little watch-houses in the middle of their fields in which they or their biggest children lodge, and early in the morning prevent the birds” from injuring the corn. He gives no description of these structures. They were, however, probably like the watch-houses of the southern Algonquians built for the same purpose. A picture of one of these in the village of Secota, by John White,<sup>2</sup> shows a raised platform on which is built a small cabin or shelter open at one side. This is referred to in the text as follows :

“In their corn fields they built, as it were, a scaffold on which they set a cottage . . . where they place one to watch, for there are such a number of fowls and beasts.”

This dwelling of Nanepashemet's seems to have been patterned after a watch-house. Such a cabin would be more comfortable in summer than the ordinary form, being cooler and more free from fleas and other vermin.

Little hunting houses of bark and rushes, “not comparable to their dwelling houses,”<sup>3</sup> were built by hunters for temporary occupancy while on their fall hunts.

In common with most American tribes the New England In-

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<sup>1</sup> Mourt's *Relation*, *Journal of the Pilgrims at Plymouth*, Cheever's repr., p. 90.

<sup>2</sup> Hariot, *Brief and True Report of Virginia*, pl. xx.

<sup>3</sup> Williams, *op. cit.*, p. 141.

dians erected little wigwams, called *wetuomémese*, in which the women lived alone during catamenia, "which custome in all parts of the country they strictly observe."<sup>1</sup>

The men's sweat-lodge was a

. . . "little cell or cave, six or eight foot over, round, made on the side of a hill (commonly by some Rivulet or Brooke), into this frequently the Men enter, after they have exceedingly heated it with a store of wood, laid upon a heape of stones in the middle. When they have taken out the fire, the stones keep still a great heate: Ten, twelve, twenty more or lesse, enter at once stark naked . . . here doe they sit round these hot stones an hour or more taking tobacco, discoursing and sweating together, . . . when they come fourth . . . I have seen them runne (Summer and Winter) into the brookes to cool them, without the least hurt."<sup>2</sup>

Another form of sweat-lodge, sometimes used by the shamans for their powwows, consisted of a small hut covered with skins or mats. Within was a pile of hot stones over which water was poured.<sup>3</sup>

#### LODGE COVERINGS

"The best sort of their houses are covered very neatly, tight, and warm, with the barks of trees, slipped from their bodies at such seasons when the sap is up; and made into great flakes with pressure of weighty timbers when they are green; and so becoming dry they will retain a form suitable for the use they prepare them for."<sup>4</sup>

Birch, chestnut,<sup>5</sup> and oak<sup>6</sup> bark are recorded as being used for lodge covering, and it is probable that the bark of other large trees such as elm, pine, and hemlock, were also used. The bark was fastened to the framework so that the upper pieces overlapped the lower. Poles were sometimes laid over the bark to aid in keeping it in place. Portable mats made of flags were extensively used for lodge coverings. The flag leaves were "finely sowed together with needles made of the splinter bones [fibula] of a Cranes legge, with thread made of their Indian hempe."<sup>7</sup> Lodges thus covered

<sup>1</sup> Ibid., p. 47.

<sup>2</sup> Ibid., p. 158.

<sup>3</sup> Gyles, op. cit., p. 91.

<sup>4</sup> Gookin, op. cit., p. 149.

<sup>5</sup> Williams, op. cit., p. 48.

<sup>6</sup> Champlain, op. cit., p. 67.

<sup>7</sup> Morton, op. cit., p. 135.

"deny entrance to any drop of raine though it come both fierce and long. Neither can the piercing North winde find a crannie through which he can conveigh his cooling breath. They be warmer than our English houses."<sup>1</sup> Gookin says that mat-covered lodges were "indifferent tight and warm but not so good as those covered with bark."

The Ojibwa, Winnebago, and other tribes still use this style of matting. The mats are three or four feet wide and eight or ten feet in length. The leaves are strung together on cords of bast or Indian hemp in such a manner that each alternate leaf lies upon the opposite side so as to cover the junction of the two opposite leaves. These cords are placed at intervals of a few inches and extend the length of the mat, the ends of which are furnished with wooden strips and with cords for tying the mats to the lodge frame. Fastening strings are also placed along the sides. These mats are light, portable, and fairly durable.

Another style of mat for lodge coverings, probably not uncommon in certain sections of New England, and still used by the Micmac, Cree, and Ojibwa, is made of pieces of the outer bark of the white birch sewed together. The pieces forming the mat are usually three or four feet in length (the width of the mat) and of varying width. The pieces are joined by overlapping their longer edges and sewing with split spruce roots. Each end of the mat is finished by placing two narrow and thin strips of wood, one at each side, so as to enclose the edge of the bark between them. These are sewed and bound together with split roots. An additional piece of bark, a foot or more long and four or five inches wide, is caught between these binding strips by one of its longest edges at each end of the mat as a reinforcement. The mat is furnished with tying cords, and when formed into a roll occupies a very small space, being light and portable. It was probably this kind of lodge covering that Father Rasles referred to as bark cloths. In the excursions of the Norridgewock Indians down the Kennebec to the seashore once or twice every season, when camping for the night they would "cover themselves with bark which they carry with them and which they have rolled out until it resembles cloth."<sup>2</sup> These

<sup>1</sup> Wood, *op. cit.*, p. 99.

<sup>2</sup> Kip, *op. cit.*, p. 60.



bark mats are still used as portable lodge coverings from New Brunswick to Lake Winnipeg, and in early historic times were doubtless common to the canoe birch region throughout the Algonquian area.

The poorer wigwams were sometimes covered with a thatch of reeds, grass, or corn-husk,<sup>1</sup> or with boughs of trees.<sup>2</sup>

#### HOUSE FURNISHINGS

The walls of the more permanent habitations were lined with embroidered mats,<sup>3</sup> or with mats of rushes painted in several colors.<sup>4</sup> These mats were also used as bedding and to sit upon. The lining mats of the Ojibwa are probably very similar to those of New England, the woof of these being composed of rushes, the warp of twisted cords of bast. The color of the ground-work is the natural brownish-yellow of the dried rushes, and pleasing patterns are produced in considerable variety by weaving in rushes dyed in various colors. Some of these mats bear a very close resemblance to the simpler kinds of Japanese straw matting.

In the smaller lodges a single fire was sufficient for the family. In the larger habitations two, three, or more fires were required according to the number of occupants. Hearths were often made of small field stones. Sometimes a post reaching to the roof was set up beside the fireplace, the upper end being secured to a cross-piece. At a convenient height a pin was driven into the post, and upon the pin the kettle was hung. At the foot of the post a broad, flat stone was set up to protect the post from the fire.<sup>5</sup>

Sometimes a scaffold about two feet high was built over the fireplace by driving four crotched sticks into the ground. Cross-bars were laid over the crotches, and over these and at right angles to them were placed sticks,<sup>6</sup> upon which fish and other food was dried and smoked. The fire was usually made of dry wood (windfalls),

<sup>1</sup> Champlain, op. cit., pp. 83, 124.

<sup>2</sup> Higgeson, *New England's Plantation*, Mass. Hist. Coll., 1st s., vol. 1, p. 123, repr. 1859.

<sup>3</sup> Williams, op. cit., p. 47.

<sup>4</sup> Josselyn, op. cit., p. 98.

<sup>5</sup> Ibid.

<sup>6</sup> Mourt, op. cit., p. 39.

but sometimes a tree was felled and the log drawn into the lodge. The fire was maintained at either side near one end, the log being gradually pushed onto the hearth until all was consumed.<sup>1</sup> Small torches made of pitch pine "cloven into little slices" were used as occasion required for lighting the interior of the hut.<sup>2</sup> Fire was produced both by friction and percussion, the latter process being more common.

The people sometimes slept upon mats and skins placed on the ground, but in the better class of habitations bedsteads were made by setting forked sticks into the earth, which supported stout poles a foot or eighteen inches from the ground. Over these, at right angles were laid other poles, or planks split from logs.<sup>3</sup> In the large houses the beds were six or eight feet wide, being large enough to accommodate three or four persons.<sup>4</sup> The bedding consisted of a reed mat "two or three fingers thick,"<sup>5</sup> or of mats and skins.

For household utensils there were mortars and pestles of stone and wood; basket sieves for sifting cornmeal;<sup>6</sup> boxes, buckets, and dishes of birch-bark; wooden dishes; baskets and bags of various sorts, and earthen pots. Trays, bowls, and ladles were made "very smooth and artificial and of a sort of wood not subject to split."<sup>7</sup> "They have dainty wooden bowles of maple of highe price amongst them; and these are disposed by bartering one with the other and are but in certain parts of the Country made, where the several trades are appropriated to the inhabitants of those parts onely."<sup>8</sup> These were made from the knotty parts of the maple and other hard woods by charring and scraping, the surface being afterward ground smooth and polished. They were of graceful form, with wall of uniform thickness, the curly grain of the knots showing to advantage. Ladles and spoons were wrought from the

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<sup>1</sup> Morton, *op. cit.*, p. 135.

<sup>2</sup> Higgeson, *op. cit.*, p. 122.

<sup>3</sup> Champlain, *op. cit.*, p. 125. Morton, *op. cit.*, p. 135.

<sup>4</sup> Gookin, *op. cit.*, p. 150.

<sup>5</sup> Champlain, *op. cit.*, p. 125.

<sup>6</sup> Gookin, *op. cit.*

<sup>7</sup> *Ibid.*, p. 151.

<sup>8</sup> Morton, *op. cit.*, p. 159.

crooked, knotty branches of the mountain laurel ("spoon wood"). Buckets with bails, boxes of various sizes, platters, etc., were made of birch-bark. The buckets were for holding liquids, the seams being rendered tight with spruce-gum. "Delicate sweet dishes too" they have of birch-bark ornamented upon the outside with "flourisht works, and upon the brims with glistering quills taken from the Porcupine, and dyed, some black, others red, the white being natural."<sup>1</sup> The inner side of the white birch-bark used in making dishes and boxes is of a reddish brown color. This side was generally taken for the outer side of the dish. Ornamental designs often covering the entire outer surface were made by scraping away portions of the thin brown inner layer until the desired pattern appeared in the light yellow of the bark beneath. The rim was finished by enclosing the edge of the bark between two wooden hoops, and carefully sewing all together with split spruce roots. Sometimes porcupine quills were used in ornamenting the rim by being woven into the spruce-root wrappings. Baskets and bags were of many kind and sizes.<sup>2</sup>

Earthen pots such as "they seeth their food in, which were heretofore, and yet are [1674] in use among some of them, are made of clay or earth almost in the form of an egg, with the top taken off . . . the clay or earth they were made of was very scarce and dear."<sup>3</sup> These pots varied in size from a quart to two or three gallons.<sup>4</sup>

The following is an excellent description of the wigwams and their furnishings, seen by the Pilgrims at Cape Cod in 1620 :<sup>5</sup>

"The houses were made with long yong Sapling trees bended and both ends stucke into the ground ; they were made round like unto an Arbour, and covered downe to the ground with thicke and well wrought matts, and the doore was not over a yard high, made of a matt to open ; the chimney was a wide open hole in the top, for which they had a matt to cover it close when they pleased ; one might stand and goe upright in

<sup>1</sup> Josselyn, op. cit., p. 111.

<sup>2</sup> Willoughby, Textile Fabrics of the New England Indians, *American Anthropologist*, 1905, vol. 7, p. 85.

<sup>3</sup> Gookin, op. cit., p. 151.

<sup>4</sup> Morton, op. cit., p. 159.

<sup>5</sup> Mourt, op. cit., pp. 39, 40.

them, in the midst of them were foure little trunches knockt into the ground, and small stickes laid over, on which they hung their Pots and what they had to seeth; round about the fire they lay on matts, which are their beds. The houses were double matted, for as they were matted without, so were they within, with newer & fairer matts. In the houses we found wooden Boules, Traves and Dishes, Earthen Pots, Hand baskets made of Crab shells, wrought together; Also an English Paile or Bucket, it wanted a bayle, but it had two Iron ears: there were also Baskets of sundry sorts, bigger and some lesser, finer and some coarser: some were curiously wrought with blacke and white in pretie works, and sundry other of their household stuffe: we found also two or three Deeres heads, one whereof had bin newly killed, for it was still fresh; there was also a company of Deeres feete stuck up in the houses, Harts horns, and Eagles clawes — and sundry such like things there was; also two or three Baskets full of parched Acornes, peeces of fish and a peece of broyled Hering. We found also a little silke grasse and a little Tobacco seed, with some other seeds which wee knew not; without were sundry bundles of Flags, Sedge, Bullrushes and other stuffe to make matts.

#### PERMANENCY OF VILLAGES

The members of each tribe or community were the recognized proprietors of certain hunting, fishing, and agricultural lands, held generally in common. According to Williams they were “very exact and punctuall in the bounds of their Lands belonging to this or that Prince or People (even to a River, Brooke &c.). And I have knowne them to make bargain and sale amongst themselves for a small piece or quantity of Ground.”<sup>1</sup> Good agricultural lands and good hunting and fishing grounds were necessary for the well-being of every community. In some regions these were combined in a comparatively small area and the village was in a measure permanent. In other localities they were widely separated, and the village or groups of people belonging to the community rotated from place to place according to the season. The winter villages were usually situated in warm, thickly wooded valleys near some lake or river. In the early spring the people moved to their fishing places, and when planting season arrived they sought their summer fields. During the latter season they would often remove from one part of

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<sup>1</sup> Williams, *op. cit.*, p. 89.

their fields to a fresh place "because of the abundance of fleas which the dust of their house breeds." During the intervals between planting, cultivating, and gathering their corn and vegetables, groups and families made excursions to their clam-beds or other localities in search of food. After the harvest was gathered they sometimes removed to a hunting house, "and forsake it not until Snow lie thick, and then will travell home, Men, women and children thorow the snow, thirtie, yea, fiftie or sixtie miles; but their great remove is from their Summer fields to warm and thicke woodie bottomes where they winter."<sup>1</sup> Lodge frames were sometimes left standing ready for the portable mats if the owners returned to the same spot.

The Indians were very expeditious at their removals. "They are quicke; in halfe a day, yea, sometimes at a few houres warning to be gone and the house up elsewhere, especially if they have stakes ready pitcht for their Mats."<sup>2</sup> Josselyn writes: "I have seen half a hundred of their Wigwams together in a piece of ground, and they show prettily, within a day or two or a week they have been all dispersed."<sup>3</sup>

#### FORTS

Most communities had as their headquarters one or more fortified enclosures, where the people dwelt at certain seasons, or into which they moved in time of danger. The larger forts consisted of more or less permanent villages of a score or more of cabins enclosed by a high palisade. The smaller ones were forty or fifty feet in diameter and contained a single cabin. The construction of the fortifications was practically the same whether they contained one or fifty houses. Some were rectangular, others circular. The smaller ones had but one entrance, while the larger had two, one on each side.

In constructing a fort all the people joined in the work. A circular or rectangular plot of ground was marked off and surrounded by a narrow trench about three feet deep. Into this were set close together in a single row "young trees and half trees as thick as a man's thigh or the calf of his leg. Ten or twelve feet

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<sup>1</sup> Williams, *op. cit.*, p. 56.

<sup>2</sup> *Ibid.*

<sup>3</sup> Josselyn, *op. cit.*, p. 98.

high they are above the ground and within [the ground] rammed three foot deep with undermining."<sup>1</sup> A trench breast high was usually dug both within and without,<sup>2</sup> the earth being thrown up against the palisades for the "better shelter against the enemies dischargements." Sometimes the outer trench was omitted.

The entrance to the fort was formed by overlapping the ends of the rows of palisades, leaving a narrow passage between them. When occasion required this passage was stopped with boughs and brush. The outer trench was spanned by a bridge or a log which led to the entrance.<sup>3</sup>

The palisades were set close together, but open spaces between logs not perfectly straight were unavoidable. Such openings were used as loop holes. Underhill<sup>4</sup> says the palisades of the Pequot fort were fastened close one to another. Other authorities do not refer to the joining of the palisades.

The fort of the Penobscot Indians was seventy feet long and fifty feet broad. Within were twenty-three well finished wigwams.<sup>5</sup> There were two forts on the Kennebec, one at Taconock (Winslow), the other at Norridgewock. Both of these contained several cabins. The fort seen by Champlain at Chouacoit (Saco) river was nearly square (fig. 11, *d*). He writes :

"The savages dwell permanently in this place and have a large cabin surrounded by palisades made of rather large trees placed by the side of each other, in which they take refuge when their enemies make war upon them." <sup>6</sup>

The two circular forts visited by the Pilgrims in eastern Massachusetts were forty or fifty feet in diameter. They each contained a single cabin.<sup>7</sup> The fort at Natick was also circular.<sup>8</sup> That of the Pequots in southeastern Connecticut enclosed about an acre of ground<sup>9</sup> and contained sixty or seventy wigwams.<sup>10</sup> It was circular,

<sup>1</sup> Vincent's Narrative, Orr's repr., in *History of the Pequot War*, p. 105.

<sup>2</sup> Mourt, op. cit., p. 90.

<sup>3</sup> Drake, *History of Philip's War*, p. 58. Mourt, op. cit., p. 90.

<sup>4</sup> Underhill's Narrative, Orr's repr., in *History of the Pequot War*, p. 78.

<sup>5</sup> Drake, op. cit., p. 325.

<sup>6</sup> Champlain, op. cit., p. 67.

<sup>7</sup> Mourt, op. cit., p. 90.

<sup>8</sup> Gookin, op. cit., p. 181.

<sup>9</sup> Underhill, op. cit., p. 78.

<sup>10</sup> Hutchinson, *History of Massachusetts Bay*, vol. 1, p. 78.

with two entrances. The ground-plan is well shown in the engraving in the original edition of Underhill.<sup>1</sup> This drawing, however, is in many respects misleading.

The forts in the southern half of New England were probably not all circular, for Wood writes that some are forty or fifty feet "square." Numerous other fortifications are noted by New England writers. These defences were frequently situated upon a hill top. Philip's fort was on elevated ground three or four acres in extent in the middle of a hideous swamp. The writer recently examined the remains of a circular fort on the top of a hill near Salem, Massachusetts. The earthwork was about fifty feet in diameter with a trench on the inner side only.

#### GARDENS

Agriculture was universal among the New England tribes. Much of the coast region south of the Saco river, Maine, was under tillage. The high, rocky shores of the central and eastern portion of Maine were not suitable for agriculture, but the fertile river valleys of the interior of this state and throughout New England generally had their well cultivated gardens wherein were grown corn, beans, pumpkins, squashes, artichokes, and tobacco.<sup>2</sup> According to Williams —

"The women of a family will commonly raise two or three heaps [of corn] of twelve, fifteen or twenty bushells a heap, which they drie in round broad heaps; and if she have helpe of her children or friends, much more."<sup>3</sup>

Therefore a family would commonly raise from twenty-four to sixty bushels of unshelled corn. This apparently does not include the amount of green corn consumed, which was considerable. Judging by the average yield of the ordinary field of the New England farmer of today, which is but a reproduction of an Indian garden, and taking into consideration the somewhat larger yield of modern varieties of corn, it seems probable that the amount of land ordinarily under cultivation by a single Indian family would

<sup>1</sup> *News from America*, London, 1638.

<sup>2</sup> Champlain, op. cit., pp. 64, 82.

<sup>3</sup> Williams, op. cit., p. 93.

be from half an acre to about one and a half acres, or, in other words, a plot of ground from one hundred and fifty feet to two hundred and fifty feet square. This estimate is corroborated by Gookin, who says the Indian fields at Wabquissit yielded forty bushels of corn to the acre. The Indians taught the colonists their native agriculture — to “cull out the finest seede, to observe fittest season, to keep distance for holes and fit measure for hills, to worme it and weed it; to prune it, and dress it, as occasion shall require.”<sup>1</sup>

Wood also says that the Indians exceed the English husbandmen in the care of their fields, keeping them clear with their clam-shell hoes, not suffering a weed to “advance his audacious head above their infant corn, or an undermining worm to spoile his spurnes.”

When a field was to be broken up they had a “loving sociable speedy way to despatch it; all the neighbors men and women, fortie, fiftie, &c. joyne and came in to helpe freely.”<sup>2</sup> In preparing new land the trees were cut off about three feet from the ground and the branches piled against the trunk and burned. Corn was planted between the stumps and in course of time the stumps and roots were torn up.<sup>3</sup> Each family had its garden, which was usually near the summer cabin, although sometimes a family had gardens a mile or two or several miles apart, and when the work of one field was over they would remove their cabin to the other.<sup>4</sup> In many places along the coast from the Saco to Cape Malabar, Champlain saw well-kept gardens with their accompanying cabins. He describes Nauset Harbor<sup>5</sup> as three or four leagues in circuit, “entirely surrounded by little houses around each one of which there was as much land as the occupant needed for his support.”<sup>6</sup>

Planting time arrived when the leaves of the white oak were as large as a mouse’s ear.<sup>7</sup> On land already cleared the weeds were burned and the ground worked over with instruments of very hard

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<sup>1</sup> Wood, op. cit., p. 74.

<sup>2</sup> Williams, op. cit., p. 92.

<sup>3</sup> Champlain, op. cit., p. 115.

<sup>4</sup> Williams, op. cit., p. 56.

<sup>5</sup> Near Eastham.

<sup>6</sup> Champlain, op. cit., p. 81.

<sup>7</sup> Belknap, *History of New Hampshire*, ed. of 1792, vol. III, p. 93.



wood shaped like a spade. The hills were three feet apart, and in each one were placed three or four kernels of corn and as many beans, and the earth heaped up with the shell of the horseshoe crab.<sup>1</sup> Hoes of wood and clam-shell are also recorded, and Williams says stone hoes were formerly used.<sup>2</sup> The Stockbridge Indians employed for this purpose an implement made of the shoulder-blade of a bear, moose, or deer, fastened to a wooden handle.<sup>3</sup> Sometimes two or three herring or shad (alewives?) were placed in the hill as a fertilizer.<sup>4</sup> It was the women's work to plant and cultivate the gardens and gather the crops, "yet sometimes the man himself (either out of love for his Wife or care for his Children, or being an old man)" will assist.

Great care was exercised to keep the ground free from weeds and to protect the young plants from the depredations of birds. As before noted, watch-houses were erected for the latter purpose. Williams says that hawks were kept tame about the cabins to keep small birds from the fields, and although the crows did the corn some injury, not one native in a hundred would kill one because of the tradition that a crow brought them their first grain of corn in one of its ears and a bean in the other from the field of the great god Kautántouwít in the southwest.

The corn (*Zea mays*) grown in the gardens of the New England Indians was of several varieties, the colors being red, blue, yellow, and white.<sup>5</sup> The modern improved varieties differ but little from these earlier kinds. The bean (*Phaseolus vulgaris*) was also of different colors<sup>6</sup> and varieties. Josselyn writes: "They are variegated much, some being bigger a great deal than others; some white, black, red, yellow, blew, spotted."<sup>7</sup> This is the common field and garden bean of the New England farmer.

The pumpkin (*Cucurbita maxima*) and the squash (asquatsquash or isquontersquash; *Cucurbita polymorpha*) were probably

<sup>1</sup> Champlain, op. cit., p. 64.

<sup>2</sup> Williams, op. cit., p. 51.

<sup>3</sup> *Extracts from an Indian History*, Mass. Hist. Coll., 1st s., vol. IX, p. 101.

<sup>4</sup> Young, *Chronicles of the Pilgrim Fathers*, p. 231.

<sup>5</sup> Mourt, op. cit., p. 34. Higgeson, op. cit., p. 118. Williams, op. cit., p. 91.

<sup>6</sup> Champlain, op. cit., p. 64.

<sup>7</sup> Josselyn, op. cit., p. 60.

raised throughout New England. In nearly all of the old-fashioned fields in these states these vegetables are grown in the same hill with the corn, and it is probable that they were thus planted in the Indian gardens. Josselyn in his quaint book, *New England's Rarities*, writes as follows concerning the squashes grown by the natives :

"Squashes, but more truly Squontersquashes, a kind of melon, or rather gourd, for they often degenerate into gourds ; some of them are green, some yellow, some longish like a gourd, others round like an apple ; all of them pleasant food . . . but the yellow squash because like an apple, and about the bigness of a pome-water is of the best kind."

The well-known modern improved varieties of this vegetable are the descendants of those found growing in the Indian gardens.

The cultivation of the artichoke (*Helianthus tuberosus*) was adopted from the Indians by the colonists as far north as Canada.<sup>1</sup> Its roots were used by the natives as an ingredient in stews. Champlain found it cultivated at Nauset Harbor in 1605, and at Gloucester in 1606.<sup>2</sup> Tobacco (*Nicotiana rustica*) was raised as far north in New England as the central Kennebec valley.<sup>3</sup> It was a smaller and more hardy species than that now grown in warmer climates. This was commonly the only plant cultivated by the men.<sup>4</sup>

The corn was harvested by the women and thoroughly dried on mats, care being taken to cover it at night with other mats and to uncover it when the sun was shining.<sup>5</sup> When thoroughly dry it was usually stored in caches, although it was sometimes placed in wooden receptacles about three feet high, made by cutting hollow logs into sections, or in baskets, and stored in the wigwam. Morton writes :

"Their barnes are holes made in the earth, that will hold a Hogsh-head of corne a peece in them. In these (when their corne is out of the huske and well dried they lay their store in greate baskets which they

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<sup>1</sup> Charles Pickering, *History of Plants*, p. 749.

<sup>2</sup> Champlain, op. cit., pp. 82, 112.

<sup>3</sup> Strachey, *History of Travel into Virginia*, Coll. Maine Hist. Soc., vol. III, p. 306

<sup>4</sup> Williams, op. cit., p. 35.

<sup>5</sup> Ibid., p. 92.

make of Sparke<sup>1</sup>) with mats under about the sides, and on the top; and putting it into the place made for it, they cover it with earth.”<sup>2</sup>

According to Wood the holes were sometimes lined with bark.

Champlain saw “trenches in the sand on the slope of the hills, some five or six feet deep more or less. Putting their corn and other grains into large grass sacks they throw them into these trenches and cover them with sand three or four feet above the surface of the earth, taking it out as their needs require.”<sup>3</sup>

The Pilgrims opened a cache at Cape Cod, being attracted by the heap of sand. In it they found —

“a little old Basket full of faire Indian Corne, and digged further & found a fine great new Basket full of very faire corne of this yeare, with some 36 goodly eares of corne, some yellow and some red, and others mixt with blew which was a very goodly sight; the Basket was round, and narrow at the top, it held about three or four Bushels, which was as much as two of us could lift up from the ground, and was very handsomely and cunningly made.”<sup>4</sup>

These old cache holes are still found in many sections of New England where the land has not been cultivated. The writer has counted more than thirty-five in an area of less than half an acre on the side of a sand hill in the Kennebec valley.

<sup>1</sup> According to Trumbull probably the same as *spart*, a northern English name for the dwarf rush and for osiers.

<sup>2</sup> Morton, op. cit., p. 160.

<sup>3</sup> Champlain, op. cit., p. 121.

<sup>4</sup> Mourt, op. cit., p. 34.